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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/656,884

Applicant(s)

ZIGMOND ET AL.

Examiner

KUNAL LANGHNOJA

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Klinger et al (United States Patent publication 2004/0177381), hereinafter referenced as Klinger.**

Regarding claim 33, Klinger discloses a passive entry point device 32 and an active reflector 36 connected to the home distribution network coaxial wiring 40 and the external cable network 10. Also connected to the home distribution network 40 are also one or more legacy set-top boxes 20, cable modems 42, and/or analog televisions 18. Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 Mhz. for video signals from the cable network 10. Furthermore, Klinger discloses the entry point device 32 can comprise a demarcation point unit, which includes a blocking filter that receives a home network signal from the home network backbone and an external signal from

the external network. The blocking filter separates the home network signal from the external signal, and returns the home network signal back to the home network backbone, which reads on claimed "an incoming filter to produce a band of blocked frequencies in an incoming stream of multimedia signals, wherein the incoming filter blocks signals having one of the blocked frequencies from entering a media network from a multimedia headend; and an outgoing filter to block signals that originate in the media network and have one of the blocked frequencies from leaving the media network." Wherein, passive entry point 32 allows 55-860 MHz frequency to enter video signal from the cable network 10 and blocks the rest of the frequency that do not fall within 55-860 MHz reads on claimed "an incoming filter to produce a band of blocked frequencies in an incoming stream of multimedia signals, wherein the incoming filter blocks signals having one of the blocked frequencies from entering a media network from a multimedia headend", and blocking filter separates the home network signal from the external signal, and returns the home network signal back to the home network backbone reads on claimed "outgoing filter to block signals that originate in the media network and have one of the blocked frequencies from leaving the media network", as disclosed in paragraphs 0024 and 0025.

Regarding claim 34, Klinger discloses everything claimed (see claim 33), in addition, Klinger discloses signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz for video signals from the cable network 10, which reads on claimed "one radio frequency filter is

both the incoming filter and the outgoing filter.” Wherein, 55-860 MHz reads on claimed “incoming filter”, and 5-42 MHz reads on claimed “outgoing filter”, as disclosed in paragraph 0024.

2. Claim 40-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Akins et al (United States Patent Application Publication 2004/0177369), hereinafter referenced as Akins.

Regarding claim 40, Akins discloses conditional access personal video recorder. In addition, Akins discloses control system located at headend 102, encrypts digital services and legitimate subscribers of the STS 100 have the necessary entitlements and keys for decrypting the payload 210, reads on claimed "a content protector to create multiple scrambled program streams from a single program stream according to a key, and a content decrypter to receive the multiple scrambled program streams and the key and decode the multiple scrambled program streams into a single program stream according to the key." Wherein, control system 332 encrypts the digital services prior to transmission to the subscribers reads on claimed " a content protector to create multiple scrambled program streams from a single program stream", and subscribers must have correct entitlements and keys reads on claimed "according to a key", received encrypted digital services are decrypted using entitlements and keys reads on claimed " decode the multiple scrambled program streams into a single program stream according to the key", as disclosed in paragraphs 0046, 0052, 0067 and 0069.

Regarding claim 41, Akins discloses everything claimed (see claim 40), in addition, Akins discloses multi-transport stream receiver transmitter 328 is adapted to encrypt content prior to modulating and transmitting based on instructions sent from the system controller 332. Based upon the instructions received from the system controller 332, the multi-transport stream receiver-transmitter 328 encrypts some or all of the programs included in the input transport streams 340 and then includes the encrypted programs in the output transport streams 342. Some of the programs included in input transport stream 340 do not need to be encrypted and in that case the system controller 332 instructs the multi-transport stream transmitter-receiver 328 to transmit those programs without encryption, which reads on claimed "the content protector places an unscrambled video frame of program content in any one of the scrambled program streams and places an associated scrambled video frame of program content in each of the remaining multiple scrambled program streams, and the identity of the scrambled program stream receiving the unscrambled video frame is recorded as a corresponding part of the key." Wherein, multi-transport stream receiver/transmitter 328 sends both the encrypted and not encrypted content using combiner 330 reads on claimed "unscrambled video frame of program content in any one of the scrambled program streams and places an associated scrambled video frame of program content in each of the remaining multiple scrambled program streams", and encrypted content have keys for decrypting keys embedded so its easy for right full owner to view digital content reads on claimed " and the identity of the scrambled program stream receiving the

unscrambled video frame is recorded as a corresponding part of the key", as disclosed in paragraph 0052, 0066, and 0076.

Regarding claim 42, Akins discloses everything claimed (see claim 41), in addition, Akins discloses the DSCT-PVR 110 processes the decryption key material DKM 226 of the ECM 214 is using a key identified by the key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service reads on claimed "receiving the multiple scrambled program streams and the key: the content decrypter reads the key to determine for a current part of the program stream which of the multiple scrambled program streams has the current unscrambled video frame of program content." Wherein, transport stream 202 including encrypted digital services reads on claimed "multiple scramble program streams", decryption key reads on claimed "key", and control words for decrypting a digital service among other digital content in transport stream reads on claimed "decrypter reads the key to determine for a current part of the program stream which of the multiple scrambled program streams has the current unscrambled video frame of program content", as disclosed in paragraph 0052.

Regarding claim 43, Akins discloses everything claimed (see claim 42), in addition, Akins discloses instead of using a single encryption key for an entire service, a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person obtains a single decryption key the pirate can

only access a fraction of a minute of the service, instead of the entire service reads on claimed "sets of consecutive unscrambled video frames and corresponding sets of consecutive scrambled video frames are placed in the multiple scrambled program streams and the key is read at regular time intervals to determine which scrambled program stream has the next set of unscrambled video frames." Wherein, some digital service is encrypted along with not encrypted content in transport stream 202 reads on claimed "sets of consecutive unscrambled video frames and corresponding sets of consecutive scrambled video frames are placed in the multiple scrambled program streams", and keys for the encrypted digital services are inserted at different intervals per minute reads on claimed "key is read at regular time intervals to determine which scrambled program stream has the next set of unscrambled video frames", as disclosed in paragraphs 0052, and 0066.

Regarding claim 44, Akins discloses everything claimed (see claim 43), in addition, Akins discloses instead of using a single encryption key for an entire service, a digital service is encrypted using encryption keys that are changed multiple times per minute, which reads on claimed "the key is read every one-half second." Wherein, changing encryption key multiple times per minute reads on claimed "one-half second", as disclosed in paragraph 0052.

Regarding claim 45, Akins discloses everything claimed (see claim 40), in addition, Akins discloses MPEG packets 204 also include an adaptation field 208 and a payload 210. The adaptation field 208 and payload 210 are separately variable in length, but the aggregate length is 184 bytes. Furthermore, the content(transport stream

202, MPEG packets 204) sent from the headed is encrypted based on information sent from control system 332 to multi-transport stream receiver-transmitter 328, which reads on claimed "a key generator in the content protector, wherein the key generator makes keys of a selected length." Wherein, payload 210 includes decryption information, which is a variable length reads on claimed "keys of a selected length", and control system 332 reads on claimed "key generator", as disclosed in paragraphs 0045 and 0077.

Regarding claim 46, Akins discloses everything claimed (see claim 45), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content decrypter changes keys at regular time intervals." Wherein, decryptors 236 located in DSCT-PVR 110 decrypt digital services from the decryption information. Furthermore, encryption keys are encrypted at multiple times per minute and decryptors have to use the change

keys and use correct keys in order to decrypt the digital service from head end reads on claimed "changes keys at regular time intervals", as disclosed in paragraph 0052.

Regarding claim 47, Akins discloses everything claimed (see claim 46), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content decrypter changes keys every ten seconds." Wherein, digital service is encrypted using keys multiple times per minute, decryptors 236 located in DSCT-PVR 110 have to use the keys to decrypt content multiple times per minute reads on claimed "changes keys every ten seconds", as disclosed in paragraph 0052.

Regarding claim 48, Akins discloses everything claimed (see claim 40), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service,

instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content protector encrypts the key according to a strong encryption technique and the content decrypted decodes a received key." Wherein, digital service is encrypted using encryption keys that are changed multiple times and it is tough for unauthorized subscriber to break the key reads on claimed "strong encryption technique", and DSCT-PVR 110 decodes the encryption key received from the head end to decrypt digital service reads on claimed "content decrypted decodes a received key", as disclosed in paragraph 0052.

Regarding claim 49, Akins discloses everything claimed (see claim 40), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a

single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content protector streams one continuous key to the content decrypter." Wherein, DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service reads on claimed "one continuous key to the content decrypter", as disclosed in paragraph 0052.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-9, 14-29, and 52-56 are rejected under 35 U.S.C. 102(e) as being anticipated by Gray et al (United States Patent Application Publication 2004/0268401) hereinafter referenced as Gray, in view of Klinger et al (United States Patent Application Publication 2004/0177381), hereinafter referenced as Klinger.**

Regarding claim 1, Gray discloses system and method for providing interactive media content over a network. Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit content (MPEG data stream) via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306, which reads on claimed "communicatively coupling a set-top box with a hub of a media network, wherein the set-top box receives streaming Moving Pictures Experts Group video modulated on coaxial cable rather than over an Internet protocol-based local area network " (Figure.5, Para.0065).

Modulation system 818 uses the output data stream of multiplexer system 814 to modulate a carrier frequency for transmission from the head-end system 301. Modulating frequency carrying content for a user via network reads on claimed "filtering signals received by the media network", and converters 819 transmitting the modulated carrier signal from head-end and data center 301 via network 820 to users reads on claimed "communication between the set-top box and the hub", as disclosed in paragraphs 0089 and 0090

Tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal, which reads on claimed "tuning the set-top box to receive data from the hub on an in-band channel", as disclosed in paragraph 0113. However, Gray fails to disclose "tuning the set-top box to send data to the hub on an out-of-band channel"

In the similar field of endeavor Klinger discloses Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32.

Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. wherein, set-top box sends data using predetermined frequencies 5 - 42 MHz to the cable network reads on claimed "tuning the set-top box to send data to the hub on an out-of-band channel", as disclosed in Klinger (Paragraphs 0024 and 0025).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "tuning the set-top box to send data to the hub on an out-of-band channel", as taught by Klinger, for purpose of sending or requesting data from the set-top box with a predetermined frequencies to reduce interference.

Regarding claim 2, Gray and Klinger, the combination discloses everything claimed (see claim 1), in addition, the combination discloses tuner, receiver, demodulator 1201 receives signals from the service provider network 1200 over any of a variety of media. Specifically, tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal, which reads on claimed "tuning the set-top box to receive multimedia content from the hub on the in-band channel." Wherein, set-top box tunes to frequency and demodulates the signals to remove content from the signal reads on claimed "tuning the set-top box to receive multimedia content", and content is received on a particular frequency band from the service provider network reads on claimed "from the hub on the in-band channel", as disclosed in Gray paragraph 0113.

Regarding claim 3, Gray and Klinger, the combination discloses everything claimed (see claim 1), in addition the combination discloses content is transmitted from head-end and data center 301 over FTTC network 503. Pedestal 504, located in relatively close geographic proximity to a group of users, is connected with FTTC network 503. Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit them via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306, which reads on claimed "communicatively coupling the set-top box with a programming content source in addition to communicatively coupling the set-top box with a hub." Wherein, STB/Gateway 308 is communicatively couple to head-end via pedestal 504 and FTTC network 503 reads on claimed "communicatively coupling the set-top box with a programming content source", and STB 308 is couple to FTTC network 503 via coaxial cable 505 reads on claimed "in addition to communicatively coupling the set-top box with a hub", as disclosed in Gray paragraph 0065.

Regarding claim 4, Gray and Klinger, the combination discloses everything claimed (see claim 3), in addition, the combination discloses content is transmitted from head-end and data center 301 over FTTC network 503, which reads on claimed "programming content source is a head end", as disclosed in Gray paragraph 0065.

Regarding claim 5, Gray and Klinger, the combination discloses everything claimed (see claim 3), in addition, the combination discloses content is transmitted from head-end and data center 301 over FTTC network 503. Pedestal 504, located in relatively close geographic proximity to a group of users, is connected with FTTC network 503. Pedestal 504 receives transmissions from FTTC network 503 and may re-

transmit them via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306, which reads on claimed "communicative coupling further includes connecting coaxial cable between the set-top box and the hub." Wherein, content is received from the FTTC network 503 to STB 308 via coaxial cable reads on claimed "communicative coupling further includes connecting coaxial cable", as disclosed in Gray paragraph 0065.

Regarding claim 6, Gray and Klinger, the combination discloses everything claimed (see claim 1), in addition, the combination discloses pedestal 504 may retransmit content received from FTTC network 503 over a copper wire twisted pair 513 to DSL modem 508. Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using an IP network protocol, which reads on claimed "communicatively coupling media network nodes with the hub, wherein a media network nodes receives streaming Moving Pictures Experts Group video an Internet protocol-based local area network." Wherein, DSL modem 508 is coupled with the FTTC network via pedestal 504 reads on claimed "communicatively coupling media network nodes", where MPEG-2 data stream is transmitted using IP network protocol reads on claimed "nodes receives streaming Moving Pictures Experts Group video an Internet protocol-based local area network", as disclosed in Gray paragraph 0065.

Regarding claim 7, Gray and Klinger, the combination discloses everything claimed (see claim 6), in addition, the combination discloses content is transmitted from head-end and data center 301 over FTTC network 503. Pedestal 504, located in

relatively close geographic proximity to a group of users, is connected with FTTC network 503. Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit them via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306. Similarly, pedestal 504 may retransmit content received from FTTC network 503 over a copper wire twisted pair 513 to DSL modem 508. Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using a network protocol such as IP, which reads on claimed "the communicatively coupling media network nodes further includes communicatively coupling the media network nodes to the hub with Internet protocol-based local area network cable while coupling the set-top box to the hub with coaxial cable." Wherein, DSL modem 508 reads on claimed "media network nodes", IP network protocol reads on claimed "internet protocol-based local area network", and digital data is sent to DSL modem using IP network protocol reads on claimed "the communicatively coupling media network nodes further includes communicatively coupling the media network nodes to the hub with Internet protocol-based local area network cable". Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit them via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306 reads on claimed "cable while coupling the set-top box to the hub with coaxial cable", as disclosed in Gray paragraph 0065.

Regarding claim 8, Gray discloses everything claimed (see claim 7), in addition the combination discloses content is transmitted from head-end and data center 301 over FTTC network 503. Pedestal 504, located in relatively close geographic proximity

to a group of users, and is connected with FTTC network 503. Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit them via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306. Similarly, pedestal 504 may retransmit content received from FTTC network 503 over a copper wire twisted pair 513 to DSL modem 508. Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using a network protocol such as IP. Furthermore, Gray discloses a signal carrying the interactive TV content is received at user premises 306. The signal is received and processed by some form of terminal device. In FIG. 5, two possible types of terminal devices, STB/Gateway 308 and PC 311 with DSL modem 508. TV services provide menuing capabilities and upstream signaling from users to service providers and also tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal which reads on claimed "simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network communications while sending communications and content between the hub and the set-top box using the in-band channels." Wherein, signal carrying the interactive TV content is received at user premises 306, where STB/Gateway 308 and PC 311 with DSL modem 508 are located reads on claimed "simultaneously sending communications and content", transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using a network protocol such as IP reads on claimed "between the hub and a media network

node using Internet Protocol-based local area network communications", Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit them via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306 reads on claimed "while sending communications and content between the hub and the set-top box", and also tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals reads on claimed "in-band", as disclosed in paragraph 005, 0065, 0066 and 0113. However, Gray fails to disclose "communication and content between the hub and the set-top box using out-of-band channels."

In the similar field of endeavor Klinger discloses Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. wherein, set-top box sends data using predetermined frequencies 5 - 42 MHz to the cable network reads on claimed "communication and content between the hub and the set-top box using out-of-band channels", as disclosed in Klinger (Paragraphs 0024 and 0025).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "communication and content between the hub and the set-top box using out-of-band

channels", as taught by Klinger, for purpose of sending or requesting data from the set-top box with a predetermined frequencies to reduce interference.

Regarding claim 9, Gray and Klinger, the combination discloses everything claimed (see claim 1), in addition the combination discloses encrypted content data sent from the head-end and data center to network, which is cached on the users system reads on claimed "encrypting programming content to be sent from the hub to the set-top box." Wherein, encrypted data reads on claimed "encrypting programming content", network reads on claimed "hub", and users system reads on claimed "ser-top box", as disclosed in Gray paragraph 0097 and paragraph 0105.

Regarding claim 14, Gray discloses everything claimed. In addition, Gray discloses Gray discloses system and method for providing interactive media content over a network. Pedestal 504 receives transmissions from FTTC network 503 and may re-transmit content (MPEG data stream) via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306. Furthermore, Gray discloses tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal, which reads on claimed "a computing hub for receiving and storing multimedia content; a set-top box coupled with the computing hub, wherein the set-top box receives streaming Moving Picture Experts Group video modulated on coaxial cable rather than over an Internet protocol-based local area network and wherein the set-top box receives data from the hub on an in-band channel", as disclosed in paragraph 0065, 0113 and Fig. 5. However, Gray fails to disclose "set-top box sends data to the hub on an out-of-band channel".

In the similar field of endeavor Klinger discloses Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. wherein, set-top box sends data using predetermined frequencies 5 - 42 MHz to the cable network reads on claimed "set-top box sends data to the hub on an out-of-band channel", as disclosed in Klinger (Paragraphs 0024 and 0025).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "set-top box sends data to the hub on an out-of-band channel", as taught by Klinger, for purpose of sending or requesting data from the set-top box with a predetermined frequencies to reduce interference.

Regarding claim 15, Gray and Klinger, the combination discloses everything claimed (see claim 14). In addition, claim 15 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 2. Claim 2 describes a method and claim 15 describes an apparatus for implementing a method. Thus claim 15 is rejected.

Regarding claim 16, Gray and Klinger, the combination discloses everything claimed (see claim 15). In addition, claim 16 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 3. Claim 3 describes a method and claim 16 describes an apparatus for implementing a method. Thus claim 16 is rejected.

Regarding claim 17, Gray and Klinger, the combination discloses everything claimed (see claim 16). In addition, claim 17 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 4. Claim 4 describes a method and claim 17 describes an apparatus for implementing a method. Thus claim 17 is rejected.

Regarding claim 18, Gray and Klinger, the combination discloses everything claimed (see claim 16). In addition, claim 18 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 3. Claim 3 describes a method and claim 18 describes an apparatus for implementing a method. Thus claim 18 is rejected.

Regarding claim 19, Gray discloses everything claimed (see claim 16), however, gray fails to disclose “a radio frequency filter blocks one or more frequencies of a signal from the multimedia content source to the set-top box and to the hub.”

In the similar field of endeavor Klinger discloses a passive entry point device 32 and an active reflector 36 connected to the home distribution network coaxial wiring 40 and the external cable network 10. Also connected to the home distribution network 40 are also one or more legacy set-top boxes 20, cable modems 42, and/or analog televisions 18. Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. Furthermore, Klinger discloses the entry point device 32 can comprise a demarcation point unit, which includes a blocking filter that receives a home network signal from the home network backbone

and an external signal from the external network. The blocking filter separates the home network signal from the external signal, and returns the home network signal back to the home network backbone, which reads on claimed "a radio frequency filter blocks one or more frequencies of a signal from the multimedia content source to the set-top box and to the hub." Wherein, signals entering the home distribution network falls within 55-860 MHz reads on claimed "frequency filter blocks one or more frequencies of a signal from the multimedia content source to the set-top box and to the hub", as disclosed in paragraphs 0024 and 0025

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gray by specially providing, "a radio frequency filter blocks one or more frequencies of a signal from the multimedia content source to the set-top box and to the hub", as taught by Klinger, for purpose of sending/receiving signals between service providers and subscribers with a predetermined frequencies to minimize interference.

Regarding claim 20, Gray discloses everything claimed (see claim 19), however, Gray fails to disclose "the set-top box sends data to the hub on an out-of-band channel that uses a frequency blocked by the radio frequency filter and receives data from the hub on an in-band channel that uses a frequency blocked by the radio frequency filter." The examiner maintains that it was well known in the art to provide the system with "the set-top box sends data to the hub on an out-of-band channel that uses a frequency blocked by the radio frequency filter and receives data from the hub on an

in-band channel that uses a frequency blocked by the radio frequency filter", as taught by Klinger.

In the similar field of endeavor Klinger discloses a passive entry point device 32 and an active reflector 36 connected to the home distribution network coaxial wiring 40 and the external cable network 10. Also connected to the home distribution network 40 are also one or more legacy set-top boxes 20, cable modems 42, and/or analog televisions 18. Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. Furthermore, Klinger discloses the entry point device 32 can comprise a demarcation point unit, which includes a blocking filter that receives a home network signal from the home network backbone and an external signal from the external network. The blocking filter separates the home network signal from the external signal, and returns the home network signal back to the home network backbone, which reads on claimed "the set-top box sends data to the hub on an out-of-band channel that uses a frequency blocked by the radio frequency filter and receives data from the hub on an in-band channel that uses a frequency blocked by the radio frequency filter". Wherein, signals from the head end enter in the home distribution network with predetermined frequencies between 55-860 MHz reads on claimed " receives data from the hub on an in-band channel that uses a frequency blocked by the radio frequency filter", and leaves the home distribution network with

predetermined frequency between 5-42 MHz reads on claimed "the set-top box sends data to the hub on an out-of-band channel that uses a frequency blocked by the radio frequency filter" , as disclosed in paragraphs 0024 and 0025

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gray by specially providing, ""the set-top box sends data to the hub on an out-of-band channel that uses a frequency blocked by the radio frequency filter and receives data from the hub on an in-band channel that uses a frequency blocked by the radio frequency filter", as taught by Klinger, for purpose of sending/receiving signals between service providers and subscribers with a predetermined frequencies.

Regarding claim 21, Gray discloses everything claimed (see claim 20), however, Gray fails to disclose "the radio frequency filter blocks data sent on the out-of-band channel from being sent over a communicative coupling to the multimedia content source and wherein the radio frequency filter blocks data sent on the in-band channel from being sent over the communicative coupling to the multimedia content source."

In the similar field of endeavor Klinger discloses a passive entry point device 32 and an active reflector 36 connected to the home distribution network coaxial wiring 40 and the external cable network 10. Also connected to the home distribution network 40 are also one or more legacy set-top boxes 20, cable modems 42, and/or analog televisions 18. Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting

signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. Furthermore, Klinger discloses the entry point device 32 can comprise a demarcation point unit, which includes a blocking filter that receives a home network signal from the home network backbone and an external signal from the external network. The blocking filter separates the home network signal from the external signal, and returns the home network signal back to the home network backbone, which reads on claimed "the radio frequency filter blocks data sent on the out-of-band channel from being sent over a communicative coupling to the multimedia content source and wherein the radio frequency filter blocks data sent on the in-band channel from being sent over the communicative coupling to the multimedia content source." Wherein blocking filter separates the home network signal from the external signal reads on claimed "the radio frequency filter blocks data sent on the out-of-band channel from being sent over a communicative coupling to the multimedia content source and wherein the radio frequency filter blocks data sent on the in-band channel from being sent over the communicative coupling to the multimedia content source", as disclosed in paragraphs 0024 and 0025.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gray by specially providing, "the radio frequency filter blocks data sent on the out-of-band channel from being sent over a communicative coupling to the multimedia content source and wherein the radio frequency filter blocks data sent on the in-band channel from being sent over the communicative coupling to the multimedia content source", as taught by Klinger, for

purpose of sending/receiving signals between service providers and subscribers with a predetermined frequencies.

Regarding claim 22, Gray discloses everything claimed (see claim 21), however, Gray fails to disclose “the radio frequency filter prevents communications back and forth between the hub and the set-top box on the blocked frequencies from leaving the system.”

In the similar field of endeavor, Klinger discloses a passive entry point device 32 and an active reflector 36 connected to the home distribution network coaxial wiring 40 and the external cable network 10. Also connected to the home distribution network 40 are also one or more legacy set-top boxes 20, cable modems 42, and/or analog televisions 18. Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. Furthermore, Klinger discloses the entry point device 32 can comprise a demarcation point unit, which includes a blocking filter that receives a home network signal from the home network backbone and an external signal from the external network. The blocking filter separates the home network signal from the external signal, and returns the home network signal back to the home network backbone, which reads on claimed “the radio frequency filter prevents communications back and forth between the hub and the set-top box on the blocked frequencies from leaving the system.” Wherein, the blocking filter separates the home

network signal from the external signal, and returns the home network signal back to the home network backbone reads on claimed "the blocked frequencies from leaving the system", as disclose in paragraphs 0024 and 0025 for the purpose of sending/receiving signals between service providers and subscribers with a predetermined frequencies.

Regarding claim 23, Gray and Klinger, the combination discloses everything claimed (see claim 14). In addition, claim 23 is interpreted and thus rejected for the reasons set forth above in the rejection of claims 3 and 4. Claims 3 and 4 describe a method and claim 23 describes an apparatus for implementing a method. Thus claim 23 is rejected.

Regarding claim 24, Gray and Klinger, the combination discloses everything claimed (see claim 14). In addition, claim 24 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 8. Claim 8 describes a method and claim 24 describes an apparatus for implementing a method. Thus claim 24 is rejected.

Regarding claim 25, Gray and Klinger, the combination discloses everything claimed (see claim 25). In addition, claim 25 is interpreted and thus rejected for the reasons set forth above in the rejection of claims 5 and 6. Claims 5 and 6 describe a method and claim 25 describes an apparatus for implementing a method. Thus claim 25 is rejected.

Regarding claim 26, Gray and Klinger, the combination discloses everything claimed (see claim 14). In addition, claim 26 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 8. Claim 8 describes a method and claim 26 describes an apparatus for implementing a method. Thus claim 26 is rejected.

Regarding claim 27, Gray and Klinger, the combination discloses everything claimed (see claim 26). In addition, claim 27 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 8. Claim 8 describes a method and claim 27 describes an apparatus for implementing a method. Thus claim 27 is rejected.

Regarding claim 28, Gray and Klinger, the combination discloses everything claimed (see claim 27). In addition, claim 28 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 8. Claim 8 describes a method and claim 28 describes an apparatus for implementing a method. Thus claim 28 is rejected.

Regarding claim 29, Gray and Klinger, the combination discloses everything claimed (see claim 14). In addition, claim 29 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 9. Claim 9 describes a method and claim 29 describes an apparatus for implementing a method. Thus claim 29 is rejected.

Claim 52 is rejected wherein "One or more computer readable media containing instructions that are executable by a computer to perform actions" (Para. 0029) comprising,

Modulation system 818 uses the output data stream of multiplexer system 814 to modulate a carrier frequency for transmission from the head-end system 301. Modulating frequency carrying content for a user via network reads on claimed "filtering signals received by the media network to provide one or more clear frequencies", and converters 819 transmitting the modulated carrier signal from head-end and data center 301 via network 820 to users reads on claimed "communication between the set-top box and the hub of a media network", as disclosed in paragraphs 0089 and 0090

Tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal, which reads on claimed "tuning the set-top box to receive data from the hub on an in-band channel", as disclosed in paragraph 0113. However, Gray fails to disclose "tuning the set-top box to send data to the hub on an out-of-band channel"

In the similar field of endeavor Klinger discloses Signals from the cable network 10 enter the home distribution network 40 through the passive entry point device 32. Signals entering or leaving the home distribution network 40 preferably fall within two bands: 5-42 MHz. for transmitting signals from the home distribution network 40 to the cable supplier head end; and 55-860 MHz. for video signals from the cable network 10. wherein, set-top box sends data using predetermined frequencies 5 - 42 MHz to the cable network reads on claimed "tuning the set-top box to send data to the hub on an out-of-band channel", as disclosed in Klinger (Paragraphs 0024 and 0025).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "tuning the set-top box to send data to the hub on an out-of-band channel", as taught by Klinger, for purpose of sending or requesting data from the set-top box with a predetermined frequencies to reduce interference.

Regarding claim 53, Gray and Klinger, the combination discloses everything claimed (see claim 52). In addition, claim 53 is rejected for the same reason set forth in rejection of claim 2. Thus claim 53 is rejected.

Regarding claim 54, Gray and Klinger, the combination discloses everything claimed (see claim 52). In addition, claim 54 is rejected for the same reason set forth in rejection of claim 2. Thus claim 54 is rejected.

Regarding claim 55, Gray and Klinger, the combination discloses everything claimed (see claim 52). In addition, claim 55 is rejected for the same reason set forth in rejection of claim 8. Thus claim 55 is rejected.

Regarding claim 56, Gray and Klinger, the combination discloses everything claimed (see claim 52). In addition, claim 56 is rejected for the same reason set forth in rejection of claim 9. Thus claim 56 is rejected.

4. Claims 10-13,30-32 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray, in view of Klinger, further in view of Akiyama et al (United States Patent Publication 2002/0001386), hereinafter referenced as Akiyama.

Regarding claim 10, Gray and Klinger, the combination discloses everything claimed (see claim 9), however the combination fails to disclose "sending multiple program streams each representing a different scrambled version of content, wherein the entire content can be derived from the multiple program streams using a key."

In the similar field of endeavor Akiyama discloses broadcast receiving method and apparatus and information distributing method and apparatus. In addition, Akiyama discloses data to be received by the broadcast receiver apparatus via a broadcast wave in the conditional access system of this embodiment include two different packets, a

contents packet and common control packet. The contents packet has a packet format shown in FIG. 4, and includes an information identifier (packet identifier), channel identifier, channel key identifier, and scrambled broadcast contents, which reads on claimed "sending multiple program streams each representing a different scrambled version of content, wherein the entire content can be derived from the multiple program streams using a key." Wherein, two different packets, a contents packet and common control packet reads on claimed "multiple program streams", scrambled broadcast contents reads on claimed "scrambled version of content", and channel key is used to decrypt the content reads on claimed "content can be derived from the multiple program streams using a key", as disclosed in Akiyama (paragraph 0101 and 0102).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "sending multiple program streams each representing a different scrambled version of content, wherein the entire content can be derived from the multiple program streams using a key", as taught by Akiyama, for purpose of preventing illegally copying of the data content sent to customers.

Regarding claim 11, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 10), in addition the combination discloses data to be received by the broadcast receiver apparatus via a broadcast wave in the conditional access system of this embodiment include two different packets, i.e., a contents packet and common control packet. The contents packet has a packet format shown in FIG. 4, and includes an information identifier (packet identifier), channel identifier, channel key

identifier, and scrambled broadcast contents. Furthermore, combination discloses information identifier indicates the type of packet of interest, and describes an identifier indicating the contents packet. The channel identifier indicates the channel of the broadcast contents of interest. The channel key identifier indicates the identifier of a channel key used to decrypt the broadcast contents of interest, which reads on claimed "corresponding parts of each of the multiple program streams only one of the program streams has unscrambled content for that corresponding part." Wherein, channel key identifier reads on claimed "corresponding part of each multiple stream", and channel key used to decrypt the broadcast contents of interest reads on claimed "unscrambled content for that corresponding part", as disclosed in Akiyama in paragraphs 0101 and 0102.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, "corresponding parts of each of the multiple program streams only one of the program streams has unscrambled content for that corresponding part", as taught by Akiyama, for purpose of sending content data to authorized subscribed customers and prevent tampering.

Regarding claim 12, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 11), in addition the combination discloses data to be received by the broadcast receiver apparatus via a broadcast wave in the conditional access system of this embodiment include two different packets, i.e., a contents packet and common control packet. The contents packet has a packet format shown in FIG. 4,

and includes an information identifier (packet identifier), channel identifier, channel key identifier, and scrambled broadcast contents. Furthermore, combination discloses information identifier indicates the type of packet of interest, and describes an identifier indicating the contents packet. The channel identifier indicates the channel of the broadcast contents of interest. The channel key identifier indicates the identifier of a channel key used to decrypt the broadcast contents of interest, which reads on claimed "corresponding parts of each of the multiple program streams a part of the key associated with the corresponding parts of each of the multiple program streams indicates which one program stream has the unscrambled content for that corresponding part." Wherein, channel key identifier reads on claimed "corresponding parts of each of the multiple program streams a part of the key associated with the corresponding parts", and channel key used to decrypt the broadcast contents of interest reads on claimed "indicates which one program stream has the unscrambled content for that corresponding part", as disclosed in Akiyama in paragraphs 0101 and 0102.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, "corresponding parts of each of the multiple program streams a part of the key associated with the corresponding parts of each of the multiple program streams indicates which one program stream has the unscrambled content for that corresponding part", as taught by Akiyama, for purpose of sending content data to authorized subscribed customers and prevent tampering.

Regarding claim 13, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 12), in addition the combination discloses information that describes contract states for respective channels for each subscriber to implement conditional access is called channel contract information. Channel numbers are assigned to respective channels, and a bit stream which represents a channel contract state depending on whether or not a bit corresponding to a channel number is "1", as shown in FIG. 2, is the channel contract information. In FIG. 2, contracts for the second, fifth, seventh, and eighth channels have been entered into, which reads on claimed "multiple program streams consist of two program streams, the key consists of a binary sequence, and each digit of the binary sequence distinguishes between the two program streams." Wherein, Channels reads on claimed "multiple program streams consist of two program streams", bit stream reads on claimed "binary sequence", and Channel numbers are assigned to respective channels, and a bit stream which represents a channel contract state depending on whether or not a bit corresponding to a channel number is "1" reads on claimed "binary sequence distinguishes between the two program streams", as disclosed in Akiyama in paragraph 0089.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, "multiple program streams consist of two program streams, the key consists of a binary sequence, and each digit of the binary sequence distinguishes between the two program streams", as taught by Akiyama, for purpose of sending content data to subscribers based on their channel contract information.

Regarding claim 30, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 29). In addition, claim 30 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 10. Claim 10 describes a method and claim 30 describes an apparatus for implementing a method. Thus claim 30 is rejected.

Regarding claim 31, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 30). In addition, claim 31 is interpreted and thus rejected for the reasons set forth above in the rejection of claim 10. Claim 10 describes a method and claim 31 describes an apparatus for implementing a method. Thus claim 31 is rejected.

Regarding claim 32, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 30). In addition, claim 32 is interpreted and thus rejected for the reasons set forth above in the rejection of claims 12 and 13. Claims 12 and 13 describes a method and claim 32 describes an apparatus for implementing a method. Thus claim 32 is rejected.

Regarding Claims 57, Gray, Klinger and Akiyama, the combination discloses everything claimed (see claim 56). In addition, Claim 57 is rejected for the same reasons set forth in rejection of claim 10. Thus, claim 57 is rejected.

5. Claims 35 - 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray, in view of Saladino et al (United States Patent Publication 2003/0014764), hereinafter, referenced as Saladino.

Regarding claim 35, Gray discloses system and method for providing interactive media content over a network. In addition, Gray discloses tuner, receiver, demodulator 1201 receives signals from the service provider network 1200 over any of a variety of media. Specifically, tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal. Furthermore, Gray discloses pedestal 504 may retransmit content received from FTTC network 503 over a copper wire twisted pair 513 to DSL modem 508. Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using an IP network protocol. Moreover, Gray discloses TV services provide menuing capabilities and upstream signaling from users to service providers, which reads on claimed "An adapter comprising: a tuner to tune an out-of-band channel of a set-top box to a frequency selected for communication over a media network, wherein the media network has a hub that communicates over an Internet Protocol-based local area network with one or more network media nodes and communicates over the out-of-band channel and the in-band channel with the set-top box and one or more other set-top boxes". Wherein, tuner, receiver, demodulator 1201 receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal reads on claimed "a tuner to tune an out-of-band channel of a set-top box to a

frequency selected for communication over a media network", Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using an IP network protocol reads on claimed "media network has a hub that communicates over an Internet Protocol-based local area network with one or more network media nodes", TV services provide menuing capabilities and upstream signaling from users to service providers reads on claimed "communicates over the out-of-band channel", and receives signals of a frequency band to which it is tuned and demodulates the signals to remove content signals from a carrier signal reads on claimed "in-band channel and one or more set-top box", as disclosed in paragraph 0113,0065,0005. However, Gray fails to disclose "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner to demodulate upstream data signals from the tuner to the hub; a quadrature amplitude modulation (QAM) modulator to receive and modulate data and multimedia content from the hub; and an upconverter coupled with the quadrature amplitude modulation (QAM) modulator to upconvert modulated data and multimedia content signals to the set-top box."

In the similar field of endeavor, Saladino discloses Method, system, and computer program product for suppression index reuse and packet classification for payload header suppression. In addition, Saladino discloses QPSK Upstream burst modulator 326 outputs the modulated carrier signal to low pass filter 328 which passes signals with spectral characteristics in a desired bandwidth. The filtered signals are then introduced to power amplifier 330 which amplifies the signal and provides it to diplex filter 302. The gain in power amplifier 330 is regulated by burst modulator 326. Diplex

filter 302 isolates the amplified signal and transmits it upstream over HFC network 110 via coaxial connector 332. The Diplex filter 302 and RF tuner 304 are comprised in tuner, which reads on claimed "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner to demodulate upstream data signals from the tuner to the hub." Wherein, QPSK Upstream burst modulator 326 is coupled with tuner (304,302) reads on claimed "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner", and Diplex filter 302 isolates the amplified signal and transmits it upstream over HFC network 110 via coaxial connector 332 reads on claimed "demodulator coupled with the tuner to demodulate upstream data signals from the tuner to the hub", as disclosed in paragraph 0065.

Saladino discloses RF Tuner is coupled with QAM downstream receiver 310 via saw filter 306 and Amp 308 to recover underlying information signal reads on claimed "a quadrature amplitude modulation (QAM) modulator to receive and modulate data and multimedia content from the hub", as disclosed in paragraph 0061

Saladino discloses QAM downstream modulator 226 is coupled with RF upconverter via saw filter and amp 230 to upconvert the signal and broadcast the signal via optical fiber 202 reads on claimed "and an upconverter coupled with the quadrature amplitude modulation (QAM) modulator to upconvert modulated data and multimedia content signals to the set- top box", as disclosed in paragraph 0058.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gray by specially providing, "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner to demodulate upstream

data signals from the tuner to the hub; a quadrature amplitude modulation (QAM) modulator to receive and modulate data and multimedia content from the hub; and an upconverter coupled with the quadrature amplitude modulation (QAM) modulator to upconvert modulated data and multimedia content signals to the set-top box", as taught by Saladino, for purpose of sending/receiving signals between service providers and subscribers.

Regarding claim 36, Gray and Saladino, the combination discloses everything claimed, as applied above, (see claim 35), however, the combination fails to disclose QAM modulator comprises an Annex B type. However, the examiner takes OFFICIAL NOTICE of the fact that it was well known in the art to provide QAM modulator comprises an Annex B type.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination by specifically providing QAM modulator comprises an Annex B type, for the purpose of meeting digital cable standards in different countries.

Regarding claim 37, Gray and Saladino, the combination discloses everything claimed (see claim 35), in addition, the combination discloses RF Tuner is coupled with QAM downstream receiver 310 via saw filter 306 and Amp 308 to recover underlying information signal and QPSK Upstream burst modulator 326 coupled with tuner (302, 304) via LPF 328, and power amp 330 reads on claimed "a QPSK modulator/demodulator coupled with the tuner to perform two-way data communication between the set-top box and the hub." Wherein, QAM downstream receiver 310 and

QPSK Upstream burst modulator 326 reads on claimed "QPSK modulator/demodulator", and sending/receiving signal from network reads on claimed "two-way data communication between the set-top box and the hub", as disclosed in Saladino in paragraph 0061 and 0065, and exhibited in figure 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gray by specially providing, "a QPSK modulator/demodulator coupled with the tuner to perform two-way data communication between the set-top box and the hub", as taught by Saladino, for purpose of sending/receiving signals between service providers and subscribers.

6. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray, in view of Saladino, in further view of Naimpally et al (United States Patent Publication 2003/0106056), hereinafter referenced as Naimpally.

Regarding claim 38, Gray and Saladino, the combination discloses everything claimed (see claim 37), however, the combination fails to disclose "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box." The examiner maintains that it was well in the art to provide with "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box", as taught by Naimpally.

In the similar field of endeavor, Naimpally discloses System and method for carriage of program-related information in vertical blanking interval (VBI) of video output signal of program guide-Equipped video equipment. In addition, Naimpally discloses receiving signals by tuner 102 coupled with MPEG decoder 112 and NTSC encoder 114 reads on claimed "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box." Wherein, MPEG decoder reads on claimed "Moving Picture Experts Group (MPEG) decoder", NTSC encoder 114 reads on claimed "National Television System Committee (NTSC) video standard encoder", receiving signals from satellite dish, antenna and cable connection reads on claimed "to receive video content from the hub", tuner 102 reads on claimed "radio frequency modulator" and tuner is couple with MPEG decoder and NTSC encoder reads on claimed "coupled with the MPEG decoder/NTSC encoder", as disclosed in paragraph 0024 and 0029.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify combination by specially providing, "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box", as taught by Naimpally, for purpose of sending digital and analog signals to customers from service providers.

7. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray, in view of Saladino, further in view of Krisbergh et al (United States Patent Publication 2004/0078824), hereinafter, referenced as Krisbergh.

Regarding claim 39, Gray and Saladino discloses everything claimed (see claim 35), however, the combination fails to disclose "set-top box sends data to the hub using an ALOHA protocol." The examiner maintains that it was well known in the art to provide "set-top box sends data to the hub using an ALOHA protocol", as taught by Krisbergh.

In the similar field of endeavor, Krisbergh discloses Access system and method for providing interactive access to an information source through a television distribution system. In addition, Krisbergh discloses settop converter 54 sends data to the server 38 in headend using ALOHA schemes reads on claimed "set-top box sends data to the hub using an ALOHA protocol", as disclosed in paragraph 0056.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify combination by specially providing, "set-top box sends data to the hub using an ALOHA protocol", as taught by Krisbergh, for purpose of transmitting upstream and downstream data between settop converter and headend and maximizing bandwidth.

8. Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray, in view of Thiagarajan et al (United States Patent Publication 2003/0196204), hereinafter referenced as Thiagarajan.

Regarding claim 50, Gray discloses everything claimed. In addition, Gray discloses pedestal 504 receives transmissions from FTTC network 503 and may re-transmit content (MPEG data stream) via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306. Furthermore, Gray discloses pedestal 504 may retransmit content received from FTTC network 503 over a copper wire twisted pair 513 to DSL modem 508. Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using an IP network protocol, which reads on claimed "a media network having a hub to send multimedia content to media network nodes and to set-top boxes in the media network, wherein the set-top boxes receive streaming Moving Picture Expert Group video modulated on coaxial cable rather than over an Internet protocol- based local area network" (Fig. 5; Paragraph 0065). However, Gray fails to disclose "tuning the set-top boxes to selected frequencies reserved for communication in the media network;

requesting a list of programs from the hub on an out-of-band channel of a set-top box using one of the selected frequencies; receiving a list of programs from the hub on an in-band channel of the set- top box using one of the selected frequencies; requesting program content on the out-of-band channel of the set-top box using one of the selected frequencies; receiving a confirmation of the requesting program content on the in-band channel of the set-top box using one of the selected frequencies; and receiving the program content on the in-band channel of the set-top box using one of the selected frequencies"

In the similar field of endeavor, Thiagarajan discloses "tuning [300,302] the set-top boxes [110] to selected frequencies reserved for communication in the media network [112]" (Fig.3; paragraph 0035); "requesting a list of programs (i.e. EPG data or VOD) from the hub [112] on an out-of-band channel of a set-top box [110] using one of the selected frequencies (i.e. channels) " (Fig.3; paragraph 0035); "receiving a list of programs from the hub on an in-band channel of the set-top box using one of the selected frequencies" (Fig.3; paragraph 0035); "requesting program content on the out-of-band channel of the set-top box using one of the selected frequencies" (Paragraphs. 0035 and 0046); "receiving a confirmation of the requesting program content on the in-band channel of the set-top box using one of the selected frequencies" (Paragraphs. 0035 and 0046); and "receiving the program content on the in-band channel of the set-top box using one of the selected frequencies" (Paragraphs. 0035 and 0046).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "tuning the set-top boxes to selected frequencies reserved for communication in the media network; requesting a list of programs from the hub on an out-of-band channel of a set-top box using one of the selected frequencies; receiving a list of programs from the hub on an in-band channel of the set-top box using one of the selected frequencies; requesting program content on the out-of-band channel of the set-top box using one of the selected frequencies; receiving a confirmation of the requesting program content on the in-band channel of the set-top box using one of the selected frequencies; and receiving the program content on the in-band channel of the set-top box using one of

the selected frequencies”, as taught by Thiagarajan, for purpose of sending/receiving content to customers from service providers and using predetermined frequencies to reduce interference.

Regarding claim 51, Gray discloses everything claimed. in addition, Gray discloses pedestal 504 receives transmissions from FTTC network 503 and may re-transmit content (MPEG data stream) via a coaxial cable 505 to STB/Gateway 308 located at the user premises 306. Furthermore, Gray discloses pedestal 504 may retransmit content received from FTTC network 503 over a copper wire twisted pair 513 to DSL modem 508. Transmissions over the FTTC network 503 may be made in a digital form. The content may be transmitted as an MPEG-2 data stream using an IP network protocol, which reads on claimed “a media network having a hub to send multimedia content to media network nodes and to set-top boxes in the media network” (Fig.5; Para. 0065). However, Gray fails to disclose “tuning the set-top boxes to selected frequencies reserved for communication in the media network; requesting a trick mode on an out-of-band channel of a set-top box using one of the selected frequencies; receiving a confirmation of the requesting a trick mode on the in-band channel of the set-top box using one of the selected frequencies; and receiving the program content in the trick mode on the in-band channel of the set-top box using one of the selected frequencies.”

In the similar field of endeavor Thiagarajan discloses “tuning [300,302] the set-top boxes [110] to selected frequencies reserved for communication in the media network [112]” (Fig.3; paragraph 0035); “requesting a trick mode (i.e. VOD data) on an

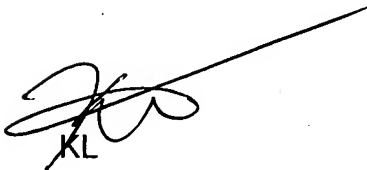
out-of-band channel of the set-top box [110] using one of the selected frequencies (i.e. channels)" (Paragraphs. 0035 and 0046); "receiving a confirmation (i.e. downloading) of the requesting a trick mode (i.e. VOD data) on the in-band channel of the set-top box [110] using one of the selected frequencies (i.e. channels)" (Paragraphs. 0035 and 0046); "receiving the program content (i.e. facilitate downloading) in the trick mode on the in-band channel of the set-top box using one of the selected frequencies" (Paragraphs. 0035 and 0046).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify method provided Gray by specially providing, "tuning the set-top boxes to selected frequencies reserved for communication in the media network; requesting a trick mode on an out-of-band channel of a set-top box using one of the selected frequencies; receiving a confirmation of the requesting a trick mode on the in-band channel of the set-top box using one of the selected frequencies; and receiving the program content in the trick mode on the in-band channel of the set-top box using one of the selected frequencies", as taught by Thiagarajan, for purpose of sending/receiving content to customers from service providers and using predetermined frequencies to reduce interference.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KUNAL LANGHNOJA whose telephone number is (571)270-3583. The examiner can normally be reached on M-F 9 A.M- 5 P.M.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Beliveau can be reached on 571-272-7343. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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